Vespa The Veda

REINTERPRETING THE ARCHITECTURE OF HUMANITY THROUGH WASPS AND FUNGI

WRITTEN AND RESEARCHED BY ***CATRINA STONER***

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THE VESPA VEDA:

Reinterpreting the Architecture of Humanity Through Wasps and Fungi

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ABSTRACT

This work introduces The Vespa Veda, a transdisciplinary framework for reinterpreting human mythology, religious doctrines, linguistic patterns, and scientific observations through the ecological and biological roles of wasps and fungi. Modern entomological and mycological research confirms their direct impact on human civilization through pollination, fermentation, architectural influence, material production, and energy capture [1]. Ancient texts across multiple cultures—from the Hebrew Bible to Sumerian inscriptions, Ancient Egyptian hieroglyphs, and modern scientific observations—preserve patterns and symbolism central to creation, divine agency, and judgment [3].

By identifying consistent structural and symbolic parallels between these domains, The Vespa Veda demonstrates that religious and scientific frameworks—often presented as mutually exclusive—actually align when analyzed as parallel records of ecological truths. This framework synthesizes mythological archetypes, ancient texts, linguistic patterns, and biological evidence to reveal a cohesive pattern embedded in the symbiotic relationship between humanity and these primordial forces, suggesting a universal truth. It calls for a shift away from anthropocentric dominance toward reverence and coexistence, bridging the divide between religious beliefs and science [4][5]. Meticulous analysis across mythology, science, linguistics, history, and philosophy uncovers an overlooked pattern that unifies these disparate fields and reveals a truth supported by evidence. The Vespa Veda offers an illuminating reinterpretation of civilization's foundations and invites humanity to reconsider the responsibilities that come with the power we have long exploited.

INTRODUCTION

Religious texts throughout history encode recurring motifs of divine agents who possess the power to create and sustain life, while also dispensing punishment and wielding destructive

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force. These texts function not only as moral and spiritual guides but also as structured frameworks that organize human imagination and desire for the benefit of the collective. Remarkably, these patterns mirror behaviors observed in altruistic, "hive-minded" insects. These parallels suggest that some of humanity's most influential ecological agents may have been encoded symbolically in cultural narratives. When examined alongside biological evidence, these recurring motifs indicate that religious tradition may preserve ecological phenomena in symbolic form. From this perspective, the traditional binary between religion and science dissolves: religion acts as a cultural memory of ecological relationships, while science provides the mechanistic explanation.

For millennia, human societies have dismissed wasps and fungi as malevolent or trivial forces. Yet a closer examination reveals them as silent architects of civilization. Archaeological, linguistic, and biological evidence demonstrates their continuous and significant influence on human development. For instance:

- Social wasps and yeast: Social wasps are confirmed vectors of the fungus *Saccharomyces cerevisiae*, or brewer's yeast. This organism was essential to the historical development of bread and alcohol, both foundational to human civilization [6][7].

- Architectural precision of *Polistes annularis*: Certain wasp species construct nests with remarkable geometrical accuracy, dividing a circle into three equal 60° angles—a manifestation of sacred geometry identical to ancient Babylonian base-60 mathematics [8].

- The Oriental hornet (*Vespa orientalis*): These hornets capture solar energy and convert it into electricity through specialized xanthopterin pigments in their exoskeleton, functioning as a biological photovoltaic system [9].

- Gall wasps and iron gall ink: Gall wasps parasitically lay eggs under oak bark, inducing the tree to form tannin-rich galls. These tannins were historically used to produce iron gall ink, the medium for many sacred texts and scrolls [10][11][12].

Wasps are almost always associated with stinging, pain, and the potential for allergic reaction leading to anaphylactic death. But in reality, wasps encompass an estimated 30,000 to 100,000 species and 99% of them cannot sting humans while 100% of them play important ecological roles in nature by specialized pollination and predatory and parasitic pest control of other insects.

This framework posits that wasps and yeast are not merely metaphors but literal agents of creation and design, shaping human civilization from the origin of fire to electricity, and from our food supply to the written word. This reinterpretation is not merely an academic exercise—it is an existential imperative [4]. Humanity's anthropocentric bias and unchecked pursuit of progress, driven by inflated ego, threaten our survival. By shifting from fear and domination

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toward reverence and coexistence, humans can reconnect with natural cycles of balance, decomposition, and renewal [5][13][14].

Ultimately, this paper seeks to translate ancient, coded narratives into an ecologically grounded understanding. It highlights patterns repeated across human texts, natural observations, and symbolic systems of mathematics, language, behavior, and morality, revealing a recurring logic that unites civilization, nature, and the sacred.

SYMBOLIC SYMBIOSIS

Human myths and religious archetypal imagery hold similarities when describing the understanding of the divine. It is suggested that wasps and fungi fit this description revealing an overlooked or forgotten ecological truth of the divine encoded in myth and religion [2][15].

DIVINE CREATION

The creative power of the ichneumon wasp is highlighted, a genus so diverse that it forced scientists to redefine what species means or if it truly exists in taxonomy, as they broke the standard of nomenclature. Each specimen is so individualized it suggests a creature 'thinking itself into existence.' This mirrors the creative spark of the djinn—a being of 'smokeless flame' in the Qur'an, who was made alongside man but refused to bow to him. According to the Qur'an, the djinn influences man by whispering false prophecies, much like wasps may have given us powerful things that could lead to our own destruction [16].
Some parasitic wasps, such as the smallest insects like fairy wasps, have evolved anucleate neurons, showcasing extreme adaptations for efficiency in their ecological roles [17].
The entire fungal kingdom is considered the fastest evolving organisms on the planet as the mycelium refuses to reproduce until it finds new genetic material to exchange [18].

GODS WRATH

Biblical accounts depict hornets as instruments of divine will expressing the wrath of God. Exodus 23:28 describes that God sent hornets to clear the promised land of adversaries. God also sends a series of plagues that fell upon Egypt, one of which is hornets [19]. They function in the scripture as a natural but targeted biological force which mirrors the biological capacity exercised in nature to precisely depopulate targeted honeybee populations. This suggests a natural, divinely commissioned force purging imperial corruption. It is of no coincidence then that the Oriental hornet (a major predatory threat to honeybee populations) is in fact native to the Biblical promise land that God cleared for his chosen people.

Parasitic wasps (*Braconidae, Ichneumonidae*) have evolved complex virus-mediated immune suppression systems to parasitize hosts [20]. The capability of wasps to alter host physiology

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aligns with ancient depictions of divine agents inflicting plagues or transformative afflictions. For example, the crypt-keeper wasp (*Euderus set),* named after the Egyptian god of evil Set for its manipulative behavior, parasitizes gall wasps by causing the host to plug its own head in a hole before being consumed, echoing mythological themes of chaos and control [21]. In Egyptian mythology, the goddess Ahti, depicted with wasp-like features and associated with spitefulness and disorder, further illustrates insects as embodiments of divine or malevolent forces [22].

Religion depicts God as an all powerful being that should be feared and is not to be idolized. This holds profound implication linking to the current viewpoint that wasps and fungi have on the mass majority.

ENTOMOLOGY OF ETYMOLOGY

THE WORD OF THE WASP

There is a linguistic correspondence between the spelling of *tzi'rah* found within the Hebrew word *yetzirah* meaning "formation," which becomes significant in Jewish Mysticism. One of the four foundations of Kabbalah is titled Sefer Yetzirah or "Book of Creation," which provides explanations of the hidden symbolic meaning of each letter in the Hebrew alphabet [23].

It may also be noted that *tzi'rah yetzirah* (wasp formation) translates to "a creative act," while *yetzirah tzi'rah* (formation wasp) translates as "a painful creation." This reflects the dual nature of a creator deity through wasp behavior—constructive in architecture, destructive in defense. This linguistic parallel suggests wasps embody the divine act of creator and destroyer.

In Sumerian mythology, *melam*—a buzzing sound or divine aura emanating from gods and kings—mirrors the hum of wasps and bees, marking sacred authority. Sumerian cosmology defines *melam* as "terrifying splendor" or the skin-crawling sensation felt upon viewing this substance. It is often associated with the Anunnaki or divine presence and linguistically linked to buzzing or humming phenomena, suggesting that the acoustic properties of social insects collectively buzzing functioned as a cross-cultural symbol of divine authority and proximity [24]. This parallels the prefix *mel*, which in Greek means "honey" or "bee."

The Hebrew surname *Melam* means "schoolteacher," connecting to the Sumerian *mul* ("star" or "shining being") and the Anunnaki, linking this divine buzz to enlightenment and celestial beings. The Hebrew *Debra* ("bee") derives from *DBR* ("to speak" or "word"), linking bees to language. This connects hive construction to linguistic construction—both collective, patterned, and functional.

From an ethological lens, the behavioral profile of wasps—nest construction, resource control, lethal enforcement of order—aligns closely with the Anunnaki's dual roles as benefactors and punishers.

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ANGELS

The Seraphim, described in Isaiah as fiery angels with six wings, derive their name from *saraph* meaning “burning one” or “venomous” and are linked to venomous serpents in Numbers dispatched to punish Israelites [19].

The word *serpent* literally means "to creep or crawl," which is ironic in modern linguistics considering it is insects, not snakes, that are referred to as "creepy crawlies." Snakes and wasps both deliver venom, induce burning sensations, and are dressed in scales; however, snakes do not possess wings nor six appendages as wasps do. This presents a compelling argument that wasps, not snakes, were potentially the celestial beings called serpents. After all, wasps having six legs is closer to six-winged than snakes, which have no appendages.

SACRED GEOMETRY

A hexagonal pattern is precisely constructed by both wasps and by bees. Wasps meticulously sweep their antennae back and forth to symmetrically make measurements, joining every three walls together forming a Y [8]. This Y shape is commonly referred to as a ‘crossroad’. According to Greek mythology, Hekate (goddess of necromancy, entryways, and crossroads) waits for souls at the crossroads to guide them through the underworld as she carries torches. This creates a symbolic link back to the burning serpents as a serpents' forked tongue bears the same Y shape.The repeating lattice of this perfect thirds Y shape subsequently creates hexagons.

This presents a primordial blueprint for sacred geometry and architecture, given that Babylonian mathematics was a base-60 system (opposed to base-10) which influenced astronomical and calendrical systems. It can therefore be speculated that wasps exhibit the geometric understanding of a 360° circle. Notably, 360 simplifies to 2×3×60, which coincides with insect morphology having two sets of wings and three sets of legs.

According to traditional Hebrew gematria, צרעה (“tzir‘ah,” meaning “wasp” or “hornet”) has a numeric value of 365, symbolically aligning with the solar calendar [25].
This implies that even the human construct of geometry—which was arguably needed to create calendars, invent the wheel, track time, etc.—was actually taught to us by insect design. Early human diets rich in insects may have contributed to brain development, enhancing problem-solving skills necessary for such innovations [26].

Even the word *hex* meaning six has implications beyond a six-sided polygon, as it also means a magical curse or spell. It is ironic that *spell* has both magical and linguistic meanings, entailing letters used in a word.

This all reinforces the conceptual link between insect architecture, sacred geometry, and encoded human communication. These linguistic patterns reveal a deliberate encoding of insect characteristics in ancient languages, reflecting a profound understanding of nature’s role in shaping spiritual and philosophical systems.

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HUMANITY'S MOST POWERFUL & DANGEROUS WEAPONS

Humanity's great leaps forward—mastery of fire, agriculture, the invention of written language—are usually told as anthropocentric triumphs and breakthroughs born in isolation. It seems much more plausible that the roots of human ingenuity and technological advancement were environmentally influenced by interspecies dynamics within the ecosystem.

FIRE

SPARK OF CREATION

In Exodus and Deuteronomy, God sends hornets to clear the promised land [19]. This imagery may not be a metaphor alone. The hornet invoked as a divine agent was likely the Oriental hornet (*Vespa orientalis*), native to the Levant region (present day Israel), whose ability to convert sunlight into electricity through xanthopterin pigments can be understood as an act of creation itself. Its diurnal activity –peaking during the time of day the sunlight is at its maximum—suggests a partial reliance on photogenerated energy[9]. Under the right conditions, electricity can cause a fire. Thus, the hornet's "photonic spark" may well have served as nature's first biological source of flame, inspiring myths of fire-giving deities.

CANDLE WAX

The Oriental hornet's role as both creator and destroyer is evident in its regular predation on honeybee colonies. Honeybees, in defense, generate so much heat by vibrating their wings, they incinerate the entire hive, killing the intruder at the cost of their own lives [27]. Such an event—a hornet engulfed in heat surrounded by wax combs built by bees—offers a striking parallel to a candle. These waxen vessels of flame are used religiously in sacred rituals and symbolize eternal life in cultures across the world. Wasps are even directly credited with carrying fire down from the heavens in some sub-Saharan traditions [28].

LIGHTNING

Modern research deepens this ecological memory. Dense swarms of insects have been shown to generate as much electrostatic charge as small thunderclouds [13]. From thunderclouds comes lightning, long revered as divine fire. In Greek myth, Zeus hurled thunderbolts in wrath and in the Hebrew Bible, God's wrath was embodied in the hornet [29][19]. Both point to the same ecological truth: insect forces shaping human awe of fire. Lightning is even thought to have created the chemical precursors of life on Earth [30].

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VESPA VESTAS

It may also be noted that *amadou*, a material derived from the hoof fungus (*Fomes fomentarius*), was used as tinder for transporting fire by humans for millennia [31]. The concept of maintaining an eternal flame is reflected in mythology through the goddess of the hearth: *Hestia* in Greek tradition and *Vesta* in Roman. She was said to have six *Vestal Virgins* who tended the eternal flame [32][33]. This mirrors social species within the order *Hymenoptera* (wasps, bees, and ants), in which virgin females often tend the colony. Interestingly, the word *Hymenoptera* itself contains "*hymen*," meaning virgin, and the social wasp genus *Vespa* closely resembles the Roman goddess's name, *Vesta*, suggesting a potential linguistic echo. Furthermore, the number six, recurring in myth and ritual, directly corresponds to the hexamerous anatomy typical of insects, reinforcing the symbolic connection between natural patterns and cultural memory.

Together, these converging patterns suggest that humanity's acquisition of fire may in fact be an encoded ecological memory: a recognition that wasps, lightning, fungus and flame are bound together as the earliest teachers of creation, destruction, and renewal.

FERMENTING & FARMING

The Levant region saw the beginning of agriculture followed by permanent structures to seasonally store grain. In Sumer they mastered the exact same process of brewing beer that is actually still used to brew beer today. The earliest writing is proposed to relay instructions for storing and distributing this commodity establishing power. In Ancient Egypt, the art of beekeeping marked the domestication or "enslavement" of honeybees. Both the controlled division of agriculture labour and the monetary payment or allotment of resources in exchange for work are two of the major foundational blocks that coincide with the rise of civilization (along with an organized religion and a written language). Historically fermentation of bread, beer, and wine were embedded in religious rituals across Mesopotamia, Egypt, and Israel.

The dual nature of the wasp and fungus is perhaps most evident in the process of fermentation. Fungi, particularly yeast, are the catalysts of this process, which is both a gift of life and an agent of decay. Wasps and fungi are symbiotic vectors of fermentation, with social wasps (*Polistes, Vespula, Vespa*) being confirmed ecological vectors for *Saccharomyces cerevisiae* yeast. Adult wasps feed on overripe fruits and carry it back to their nests then store yeast cells in their gut during winter diapause, releasing them in spring when feeding larvae. This seasonal cycle constitutes a stable wild reservoir for S. *cerevisiae* independent of human agricultural activity [6].

RAISIN' BREAD

Since yeast is activated by sugar and the earliest evidence of bread significantly predates granulated sugar, the first bread created was unleavened. Since wheat itself doesn't ferment due to lack of sugar, the first risen bread had to rely on fruits for sugar. A logical implication for

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the fruit that was potentially used is grapes. After all grapes have yeast on their skin already, and in desert regions they preserve themselves by shriveling to raisins. Not to mention that grapes and wasps are well known associates. In fact, different flavor profiles in wine tasting have been attributed to wasps [34]. Yeast is farmed within wasps while bees farmed by humans attract the wasps that farm the yeast, and then the grain we farm gets tainted. Conversely, it has been suggested that wasps are controlled by the yeast: yeast needs sugar and thrives within wasp guts, so yeasts help wasps navigate to find more sugar, mutually benefiting both [35].

The association of leavened bread with divine blessing and wine with covenantal acts may originate from ecological dependence on insect-mediated yeast distribution. Social wasps, such as the Oriental hornet, exhibit remarkable tolerance to high ethanol concentrations, metabolizing up to 80% ethanol without affecting lifespan or behavior, likely due to multiple alcohol dehydrogenase genes, reinforcing their role in fermentation processes [36].

NO LEAVEN IN HEAVEN

Reimagine the Exodus narrative wherein the Hebrews, fleeing Egypt in haste, consumed unleavened bread *(matzah)* symbolizing resistance to the yeast of sin, reflecting an unrisen soul or humility. This biblical narrative is further enriched by the idea that after crossing the desert, the grapes would have dried into raisins. The yeast on these dried grapes, when mixed into dough, caused the bread to rise from the dead dormant state in which air pockets formed as if God breathed life into it. It is logical to reason that raisin bread initiated the literal raise in bread. This act, however, also carries a symbolic danger, as bread is one of the easiest foods to choke on, much like in Genesis when Adam chokes on the forbidden fruit, resulting in the "Adam's apple". Perhaps the forbidden fruit eaten in Eden was bread raised from the dead by raisins.

YEASTER SUNDAY

In Christianity, the Eucharist's bread and wine embody divine communion. This ritual is directly influenced by wasp-carried yeast. Subjects are fed bread and given wine as a symbolic representation of consuming the body and blood of Christ. If Christ 'died for sin' as taught in biblical teachings, that would make yeast the symbolic representation of sin. This explains the abstinence from leavened bread practiced before Passover. It is suggested that Yeaster is the more appropriate term for Easter Sunday as it is said to commemorate Christ rising from the dead much like the rising of the bread.

SIN IN MEDICINE

The Hebrew word *tzi'rah* (wasp) may share roots with *tsa'rah*, meaning to cover or infect with mold or mildew, again connecting wasps with fungi. When yeast fungi (bread) is eaten by mold fungi (*Penicillin)*, it creates antibodies that compete against bacteria. Humanity discovered these strains and isolated them creating cultures of antibiotics. While antibiotics kill harmful bacteria, the name *antibio* literally means "against life"—a linguistic curse of death that God warns of. This is the yeast of sin—a gift that paradoxically contains both life and a path to death. Fungal

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diseases, unlike bacterial ones, often do not die but go dormant, reawakening when "holy water" (symbolic cleansing) touches their spores [14].

Human yeast (*candida albicans)* lives on our skin naturally alongside *staphylococcus* bacteria responsible for staph infection. When the bacteria and fungus together enter a wound into the blood stream, this yeast acts as an antibody *for* the bacteria against the body essentially making a superbacteria that is resistant to medications. *MRSA (Methicillin-resistant Staphylococcus aureus)* is a common known example and it is a byproduct of a bacteria and fungus that live on human skin already and instead of competing they work together becoming supergerms that medication cannot cure [37].

EATEN IN EDEN

In Genesis, after Adam and Eve eat the fruit God curses the serpent to crawl on the ground and eat dust as mankind is cursed to labor the fields endlessly [19]. Suppose the radical idea that the serpent was actually a wasp and the forbidden fruit was yeast. This idea expressed as original sin can be taken quite literally. A fruit is a womb of a plant and wasp guts incubate yeast. Since yeast is sin and wasps incubate such, the fruit from Genesis was literally a wasp that was ingested. Eve bit it first, perhaps contributing to the venomous tongue associated with women. They were all punished; man to suffer labour in the fields, woman to suffer pain during labor when she yields and the serpent was cursed to crawl on the ground eating dust. This quite literally correlates with the fossil record of the order *Hymenoptera* and its evolution. Ants, bees, and wasps can all be evolutionarily linked to a single common ancestor—a prehistoric solitary wasp. Meaning ants and bees both diverged separately from wasps initially. Further evidence of the fungal connection shows that ants collect food but do not consume it; they take it back to their nest to farm fungus. Ants in fact have completely domesticated fungal strains not found anywhere in nature besides within ant colonies [38].

WRITTEN WORD

The very act of writing, the foundation of all scripture, is also a gift from the wasp. Most social wasps, notably the Paper wasp, construct nests by chewing wood pulp and their salivary secretions mixed with plant fiber. They literally showed humanity how to make paper, an invention attributed to the Ancient Egyptians.This process provided the foundation for the proliferation of the written word. Furthermore, the Sefer Yetzirah, an ancient Kabbalistic text, is the "Book of Creation" that explains the meaning and creative power of each letter of the Hebrew alphabet. This text is a profound testament to the power of language as a divine instrument of creation. Notice that the word Yetzirah contains the word *tzi'rah*, meaning "wasp" or “hornet” in Hebrew. [23]. This creates a direct link between the wasp and the divine act of the written language. The presence of the word *tzi'rah* within the title of this seminal text on creation via logos (writing) solidifies the wasp's role as a fundamental force in "forming" reality through language.

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In addition, gall wasps *(Cynipidae)* and their parasitic interaction with oak trees created the medium of writing. The wasp lays eggs in oak buds, prompting the tree to form tumor-like galls which induce plant tissue hypertrophy in the trees, forming galls rich in tannic acid. Combined with iron salts, these tannins are used to produce iron gall ink. This ancient ink has been revered as top quality and has been used for over a millennium for scribing ancient texts including sacred religious scrolls such as the Torah, early Qur'ranic manuscripts, Biblical codices and even foundational documents such as the Magna Carta and the United States Constitution [10][11][12]. The biological origin underscores a direct entomological input into the transmission of religious and legal canon. Wasps are the literal actual source of the finest holy ink that wrote the first alphabet. The sacred act of writing, preserving divine truths in permanent form, is thus linked biologically to the relationship between a wasp and a tree in order to record knowledge.

THE CHICKEN OR THE EGG

Long has there been a split dividing people because of beliefs in creation or evolution, the plutonists or the neptunists, religion or science. This perception challenges the separation itself by proposing that both beliefs are true and exist together in the form of wasps. There are 25,000 described species of wasps and an estimated 100,000 or more species yet undescribed [39].

Their swarming presence in ecosystems reflects the recursive cycle of Genesis itself: “be fruitful and multiply” [19]. Just as the Hebrew Bible repeatedly invokes swarms as symbols of creation and divine order, wasps manifest that principle biologically. They are swarm incarnate—an ancient blueprint of multiplication, diversification, and survival.

Parasitic wasps of the order *ichneumonidae* demonstrate this best. Ichneumon wasps are so diverse that it forced scientists to redefine what "species" even means or *if* it can actually be defined. Each specimen of the order *ichneumonidae* is so unique, that identification of them has no generally accepted or agreed upon consensus as many scientists argue each individual wasp could be its own kind. *Ichneumon* in Greek means “tracker” or “footprint” coinciding with a notion of written records.
Yet, scientists find new species faster than they can possibly name, describe, or log them effectively “breaking” the taxonomy standard of nomenclature [40]. Are the wasps “thinking themselves into existence", an act previously reserved for a creator or god or are they evolving so rapidly that mapping the phylogeny is impossible?
Well, both.

Nothing paradoxically embodies proof of evolution and validation of a creator simultaneously more perfectly than wasps. Research has found wasps actively evolving into new species right before their eyes. In just the past 160 years, certain wasp lineages have split into distinct populations, diversifying rapidly as their host plants and prey shifted. This “speciation” (rapid evolution) in action is a living testament to how adaptations over time become evolution—but

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wasps exhibit this in a single specimen multiple times during its life span. It completely turns into a new species by changing its prey [41].

Wasps are not only products of evolution though. They are equally also conscious creators designing it. Their intimate relationship with viruses demonstrates this. Parasitic wasps have domesticated polydnaviruses long ago from ancient viral genomes that they still carry [42]. These lingering viruses are now integral tools of the wasp's biology, weaponized to disarm the immune systems of caterpillars and other hosts [43].

This strange partnership shows that wasps harnessed viral machinery as if forging biological technology. The same way humans stole wild bees from nature and selectively molded them to suit our needs, wasps have done the same with viruses. This makes wasps both destroyers and inventors. They engineer by forcing a genetic change, and in doing so, continually generate new forms of life. This is the act of creating evolution!

Wasps venom evolved through a combination of gene co-option and specialization within venom glands. So instead of relying on gene duplication, wasps take existing genes, which have other functions, and repurpose them to produce venom. This process is faster than evolving entirely new genes from scratch [44]. They essentially can shape shift into a new species of wasp by building new poison.

It is no wonder then that nearly every species of pest insect that exists, has a parasitoid wasp that is highly specialized to that insect.

CONCLUSION

Humanity's most powerful technologies—fire, farming, and writing—are often framed as triumphs of human genius, but the evidence suggests they were inherited, not invented. Wasps and fungi shaped the ecological processes that humans merely learned to harness. The Oriental hornet taught fire, wasps farmed yeast long before humans fermented bread and beer, ants domesticated fungi before the plow ever broke soil, and ichneumonids tracked life with a precision that mirrors written records.

Charles Darwin found the *Ichneumonidae* so troubling that it contributed to his doubts about the nature of a Creator. He stated,

> *"I own that I cannot see as plainly as others do, and as I should wish to do, evidence of design and beneficence on all sides of us. There seems to me too much misery in the world.*
> I cannot persuade myself that a beneficent and omnipotent God would have designedly created the Ichneumonidae
> *with the express intention of their feeding within the living bodies of Caterpillars, or that a cat should play with mice." [40].*

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Yet perhaps the error lies in assuming they were designed at all. Wasps are not evidence against a creator but evidence that they themselves are the creators. Nature's designers were never gods in human form but insects whose behaviors sculpted ecosystems and imprinted themselves into human myth.

What ancient cultures preserved in their stories—the fire-bringers, the eternal flame, the bread of life, the serpent of temptation—were not abstractions but ecological memories of insect and fungal influence. Religion encoded these agents as divine, while science explains them as mechanisms. But both point to the same truth: that wasps and fungi are the hidden architects of human civilization.

In contemplating the Vespa Veda one might ponder the vastness of the universe. Just as there are countless stars in the sky, there may be an innumerable number of wasp species, each playing its part in the cosmic dance of creation and destruction. Perhaps, for every human consciousness, for every star in the sky, there exists a wasp species; a boundless creativity to reflect our own complexity by bridging science, mythology, religion, linguistics, philosophy, and imagination.

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REFERENCES

1. UIC Heritage Garden. (n.d.). *Wasps: Ecological Importance and Human Perception*. Retrieved from http://heritagegarden.uic.edu/wasps
2. Kritsky, G., & Cherry, R. H. (2000). *Insect Mythology*. University of Illinois Press.
3. Wikipedia. (n.d.). Insects in mythology. Retrieved from https://en.wikipedia.org/wiki/Insects_in_mythology
4. Numberanalytics.com. (n.d.). *Eco-Spirituality* Philosophy. Retrieved from https://www.numberanalytics.com/blog/eco-spirituality-philosophy
5. Numberanalytics.com. (n.d.). *Ecological Spirituality & Environmental Philosophy*. Retrieved from https://www.numberanalytics.com/blog/ecological-spirituality-environmental-philosophy
6. Stefanini, I., et al. (2012). *Social wasps are a Saccharomyces cerevisiae ecological niche*. Proceedings of the National Academy of Sciences, 109(39), 15897-15902.
7. Shogren, E. (2012, August 2). *Thank the simple wasp for that complex glass of wine*. NPR. https://www.npr.org/sections/thesalt/2012/08/02/157606554/thank-the-simple-wasp-for-that-complex-glass-of-wine
8. Riter, M. (2014, May 25). *Why honeybees, hornets build hexagons*. Poughkeepsie Journal. https://www.poughkeepsiejournal.com/story/tech/science/environment/2014/05/25/mike-riter-hornets-environment/9456687/
9. Plotkin, M., Volynchik, S., Bergman, D. J., & Ishay, J. S. (2010). *Electricity generation by the Oriental Hornet (Vespa orientalis)*. Journal of Experimental Biology, 213(11), 1821-1825.
10. Jackson, M. (2001). *Gall Ink and the Iron Pen: Medieval Writing Materials*. The British Library Archives.
11. Travelingscriptorium.com. (2013, March 21). *Iron Gall Ink*. Retrieved from https://travelingscriptorium.com/2013/03/21/iron-gall-ink/
12. Wikipedia. (n.d.). *Iron gall ink*. Retrieved from https://en.wikipedia.org/wiki/Iron_gall_ink
13. SciTechDaily. (n.d.). *Insects Can Produce as Much Atmospheric Electric Charge as a Thunderstorm Cloud*. Retrieved from https://scitechdaily.com/insects-can-produce-as-much-atmospheric-electric-charge-as-a-th understorm-cloud
14. Warwick.ac.uk. (n.d.). *Irresistible Decay*. Retrieved from https://warwick.ac.uk/fac/arts/hrc/confs/id/irresistible_decay_booklet.pdf
15. Wikipedia. (n.d.). *Insects in mythology*. Retrieved from https://en.wikipedia.org/wiki/Insects_in_mythology
16. *The Qur'an*. Translated by M. A. S. Abdel Haleem. (2004). Oxford University Press.
17. Polilov, A. A. (2012). *The smallest insects evolve anucleate neurons*. Arthropod Structure & Development, 41(1), 29-34.
18. Bone E. *Mycophilia: Revelations from the Weird World of Mushrooms*. New York: Rodale; 2011.

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19. The Hebrew Bible. Translated by Robert Alter. (2009). *The Five Books of Moses: A Translation with Commentary*. W. W. Norton & Company.
20. Herniou, E. A., Huguet, E., Thézé, J., Bézier, A., Periquet, G., & Drezen, J. M. (2013). *When parasitic wasps hijacked viruses: Genomic and functional evolution of polydnaviruses*. Philosophical Transactions of the Royal Society B: Biological Sciences, 368(1626).
21. Pensoft.net. (2017, January 25). *New species of parasitic wasp named after ancient god of evil Set shows wicked behavior*. Retrieved from https://blog.pensoft.net/2017/01/25/new-species-of-parasitic-wasp-named-after-ancient-god-of-evil-set-shows-wicked-behavior/
22. Nemo.nu. (n.d.). *Egyptian gods:* Ahti. Retrieved from http://www.nemo.nu/ibisportal/0egyptintro/1egypt/gudasidor/ahti.htm
23. Kaplan, A. (1997). *Sefer Yetzirah: The Book of Creation in Theory and Practice*. Weiser Books.
24. Black, J., & Green, A. (1992). *Gods, Demons and Symbols of Ancient Mesopotamia: An Illustrated Dictionary*. British Museum Press.
25. ה (n.d.). בגימטריה 365 = צרעה. Gimatria.co.il. Retrieved from gimatria.co.il
26. Melin, A. D., et al. (2014). *Insect diet helped early humans build bigger brains: Quest for elusive bugs spurred primate tool use, problem-solving skills.* ScienceDaily.
27. Howgego, J. (2018, July 16). *Honeybees gang up to roast invading hornets alive — at a terrible cost.* New Scientist. Retrieved from https://www.newscientist.com/article/2174097-honeybees-gang-up-to-roast-invading-hornets-alive-at-a-terrible-*cost/*
28. van Huis A. *Cultural aspects of ants, bees and wasps, and their products in sub-Saharan* Africa. Int J Trop Insect Sci. 2021;41(3):469–86.
29. Lightning Strike Ltd. (n.d.). *Zeus | Thunderstorms: The wrath of Zeus. Lightning Strike* Ltd. Retrieved August 17, 2025, from https://www.lightningstrikeltd.co.uk/blog/zeus/
30. Chaudhry, Y. (2024, August 7). *How did life begin on Earth? Research zeroes in on lightning strikes.* Harvard Gazette. https://news.harvard.edu/gazette/story/2024/08/how-did-life-begin-on-earth-research-zeroes-in-on-lightning-strikes/
31. Wikipedia contributors. (n.d.). *Fomes fomentarius*. Wikipedia. Retrieved August 16, 2025, from https://en.wikipedia.org/wiki/Fomes_fomentarius?wprov=sfla1
32. Wikipedia contributors. (n.d.). *Hestia*. In Wikipedia. Retrieved August 17, 2025, from https://en.wikipedia.org/wiki/Hestia
33. Wikipedia contributors. (n.d.). *Vestal Virgin*. In Wikipedia. Retrieved August 17, 2025, from https://en.wikipedia.org/wiki/Vestal_Virgin
34. Di Paola, M., Gori, A., Stefanini, I., Meriggi, N., Renzi, S., Nenciarini, S., Cerasuolo, B., Moriondo, M., Romoli, R., Pieraccini, G., Baracchi, D., Turillazzi, F., Turillazzi, S., & Cavalieri, D. (2023). *Using wasps as a tool to restore a functioning vine grape mycobiota and preserve the microbial "terroir"*. Scientific Reports, 13(1), 16544. https://doi.org/10.1038/s41598-023-43541-9

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35. Philosophy News. (2024, August 10). *The microorganism that shaped humanity*. Philosophy News. Retrieved from https://philosophynews.com/the-microorganism-that-shaped-humanity/
36. *Tolerance and efficient metabolization of extremely high ethanol concentrations by a social wasp* - PubMed. Retrieved from https://pubmed.ncbi.nlm.nih.gov/39432778/
37. Wikipedia contributors (n.d.) *Methicillin-resistant Staphylococcus aureus*. In Wikipedia. Retrieved August 17, 2025. From https://en.wikipedia.org/wiki/Methicillin-resistant_Staphylococcus_aureus?wprov=sfla1
38. Smithsonian Magazine. *Were ants the world's first farmers?*. Smithsonian Magazine; 2016 Jul 20 [cited 2025 Aug 17]. Available from: https://www.smithsonianmag.com/smithsonian-institution/were-ants-worlds-first-farmers-180959840/
39. Wikipedia contributors (n.d.) Wasp In Wikipedia. Retrieved August 17, 2025. From https://en.wikipedia.org/wiki/Wasp?wprov=sfla1
40. Wikipedia contributors (n.d.) *Ichneumonidae* In Wikipedia. Retrieved August 17, 2025. From https://en.wikipedia.org/wiki/Ichneumonidae?wprov=sfla1
41. Gilroy WG. *Scientists detect wasps evolving into new species*. Internet. University of Notre Dame News; (d.n) cited 2025 August 18. Available from https://news.nd.edu/news/scientists-detect-wasps-evolving-into-new-species/#:~:text=Scientists%20have%20observed%20three%20species,within%20the%20last%20160%20years
42. Yong E. *Parasitic Wasps Genetically Engineer Caterpillars Using Domesticated Viruses* Internet. The Atlantic; 2015 Sep 17 [cited 2025 Aug 18]. Available from https://www.theatlantic.com/science/archive/2015/09/parasitic-wasps-genetically-engineer-caterpillars-domesticated-viruses/405874/
43. Yong E. *Wasps Use Genes Stolen from Ancient Viruses to Make Biological Weapons* [Internet]. National Geographic; 2009 Feb 12 [cited 2025 Aug 18]. Available from: National Geographic article
44. Martinson EO, *Laterally transferred gene recruited as a venom* . Mol Biol Evol. 2016;33(4):1042–52. [cited 2025 Aug 18]. Available from https://academic.oup.com/mbe/article/33/4/1042/2579705
45. Goulet, H., & Huber, J. T. (Eds.). (1993). *Hymenoptera of the World: An Identification Guide to Families*. Agriculture Canada.
46. Stanford.edu. (n.d.). Self-Renewal. Retrieved from http://dci.stanford.edu/wp-content/uploads/2018/03/Self-Renewal-selected-chapters.pdf
47. ScienceDirect. (n.d.). *Ecological and Economic Importance of Parasitic Wasps*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0306456501000109

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